Complete Summary

GUIDELINE TITLE

Procedure guideline for general imaging.

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for general imaging. Version 3.0. Reston (VA): Society of Nuclear Medicine; 2004 May 30. 10 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Society of Nuclear Medicine. Procedure guideline for general imaging, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 36 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Conditions for which general nuclear medicine imaging is indicated

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Nuclear Medicine
Radiology

INTENDED USERS

Allied Health Personnel
Physicians

GUIDELINE OBJECTIVE(S)

To provide nuclear medicine practitioners with general guidelines on imaging in the practice of nuclear medicine

TARGET POPULATION

Adults and children for whom nuclear medicine imaging procedures are indicated

INTERVENTIONS AND PRACTICES CONSIDERED

General Imaging

1. Single photon scintillation cameras to obtain single photon emission computed tomographic (SPECT, also know as SPET) images
2. Positron cameras to obtain positron emission tomographic (PET) images
3. Nuclear medicine computer systems

MAJOR OUTCOMES CONSIDERED

Utility and safety of imaging procedures

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Literature searches were performed. In addition, references known to experts and references from the nuclear medicine community were considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Drafts of the guideline were submitted to members of the Guideline Development subcommittee (methodologists) and the Task Force (subject experts). These reviewers indicated on a line-by-line basis any suggestions or recommendations for the revision of the guideline. The percentage of agreement for all reviewers was calculated for each revision and compiled by the Society of Nuclear Medicine (SNM) central office. It is expected that the percentage of agreement will increase with each revision.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When the Task Force and Guideline Development Subcommittee completed their edits, draft procedure guidelines were distributed to the Society of Nuclear Medicine (SNM) Sample Review Group for comment. (The SNM Sample Review Group is a cross-section of approximately 100 nuclear medicine practitioners representing every field of specialization).

The guideline was approved by the SNM Commission on Health Care Policy, the Board of Directors, and the House of Delegates.

The update was approved May 30, 2004.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Background Information and Definitions

The strength of nuclear medicine lies in its ability to image and quantify regional physiologic biochemical processes. This information may complement anatomic information provided by other modalities.

A. Single Photon Scintillation Cameras

Single-photon scintillation cameras provide static, dynamic, or gated images of the distribution of radiopharmaceuticals within the body. Single photon emission computed tomographic (SPECT, also known as SPET) images may be obtained by reconstruction of a number of planar images taken at different angles. Computed tomography (CT) scanners have been combined with some single-photon cameras that have SPECT capability in order to provide attenuation correction capability as well as localizing information. Use of combined SPECT/CT scanners is likely to increase in the future.

B. Positron Cameras

Positron cameras provide static, dynamic, or gated images of the distribution of positron-emitting radionuclides within the body by detecting pairs of photons produced in coincidence by the annihilation of a positron and an electron. Positron emission tomographic (PET) images are produced by reconstruction from the coincidence pair data. CT scanners have been combined with some positron cameras to provide attenuation correction capability as well as localizing information. Use of combined PET/CT scanners is rapidly increasing.

C. Nuclear Medicine Computer Systems

Nuclear medicine computer systems collect, quantitate, analyze, and display the imaging information.

Procedure

The detailed procedure recommendations in the guideline address the following areas: patient preparation; information pertinent to performing the procedure (i.e., important data that the physician should have about the patient at the time the exam is performed and interpreted); precautions; and quality control.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The intent of the procedure guideline is to describe general imaging studies, in order to maximize the diagnostic information obtained in the studies while minimizing the resources that are expended.

POTENTIAL HARMS

- A few diagnostic nuclear medicine studies (e.g., ^{131}I whole-body imaging) may have severe consequences for the developing fetus. The risk of performing these studies in a pregnant woman should be weighed against the benefits.
- Current Nuclear Regulatory Commission regulations require that written instruction be given to breastfeeding women if the potential radiation dose to the infant is likely to exceed 5 mSv (500 mrem); oral instructions are required if the potential radiation dose to the infant is likely to exceed 1 mSv (100 mrem). Pathways for exposure include ingestion of tracer concentrated in breast milk and external exposure as a result of close contact during breastfeeding. There is considerable uncertainty about the actual dose to the infant since little data are available for excretion into breast milk for most radiopharmaceuticals.
- For a few diagnostic studies (e.g., ^{131}I whole-body imaging), the radiation dose to the lactating breast can be large (10 cSv [10 rem] or greater)--as much as 10 times the dose to the nonlactating breast. When possible it is best to delay these studies for at least 4 weeks after breastfeeding has stopped.
- Medical personnel should be instructed in the proper care of patients after radioisotope administration. Generally, the hazard to personnel is small and measures taken to protect workers from biological hazards are sufficient to protect workers from radiological hazards.
- In general, precautions taken to avoid biological hazards from patient excreta are more than sufficient to avoid the often much smaller radiation hazard.
- Instructions should be provided on methods of minimizing radiation exposure to the patient's family and to the general public, where appropriate.
- In general, there is no scientific or regulatory reason why a pregnant nurse cannot provide routine care to a patient who has had a diagnostic imaging study. The risk of caring for a patient receiving therapy is small; however, it may be prudent not to assign pregnant nurses to care for these patients.

CONTRAINDICATIONS

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- Elective diagnostic nuclear medicine procedures should be delayed until a patient is no longer pregnant or breastfeeding.
- For nonelective diagnostic procedures, breastfeeding should be interrupted for an amount of time appropriate for the radiopharmaceutical used. For a few diagnostic studies (e.g., ^{131}I whole-body imaging), breastfeeding must be stopped for 1-2 months; therefore, it is impractical to resume breastfeeding for that child.

QUALIFYING STATEMENTS

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- The Society of Nuclear Medicine (SNM) has written and approved these guidelines as an educational tool to promote the cost-effective use of high quality nuclear medicine procedures or in the conduct of research and to assist practitioners in providing appropriate care for patients. The guidelines should not be deemed inclusive of all proper procedures nor exclusive of other procedures reasonably directed to obtaining the same results. They are neither inflexible rules nor requirements of practice and are not intended nor should they be used to establish a legal standard of care. For these reasons, SNM cautions against the use of these guidelines in litigation in which the clinical decisions of a practitioner are called into question.
- The ultimate judgment about the propriety of any specific procedure or course of action must be made by the physician when considering the circumstances presented. Thus, an approach that differs from the guidelines is not necessarily below the standard of care. A conscientious practitioner may responsibly adopt a course of action different from that set forth in the guidelines when, in his or her reasonable judgment, such course of action is indicated by the condition of the patient, limitations on available resources, or advances in knowledge or technology subsequent to publication of the guidelines.
- All that should be expected is that practitioner will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of these guidelines is to assist practitioners in achieving this objective.
- Advances in medicine occur at a rapid rate. The date of a guideline should always be considered in determining its current applicability.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for general imaging. Version 3.0. Reston (VA): Society of Nuclear Medicine; 2004 May 30. 10 p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb (revised 2004 May 30)

GUIDELINE DEVELOPER(S)

Society of Nuclear Medicine, Inc - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Nuclear Medicine (SNM)

GUIDELINE COMMITTEE

Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: J. Anthony Parker, MD, PhD (Beth Israel Hospital, Boston, MA); Margaret E. Daube-Witherspoon, PhD (University of Pennsylvania, Philadelphia, PA); L. Stephen Graham, PhD, FACR (West Los Angeles VA Medical Center/UCLA School of Medicine, Los Angeles, CA); Henry D. Royal, MD (Mallinckrodt Institute of Radiology, St. Louis, MO); Andrew E. Todd-Pokropek, PhD (University College of London, United Kingdom); Michael V. Yester, PhD (University of Alabama at Birmingham, Birmingham, AL)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

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GUIDELINE AVAILABILITY

Electronic copies: Available from the Society of Nuclear Medicine (SNM) Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Society of Nuclear Medicine. Procedure guideline for guideline development. Reston (VA): Society of Nuclear Medicine; 2001 Jun (version 3.0). Electronic copies: Available from the Society of Nuclear Medicine Web site.
- Society of Nuclear Medicine. Performance and responsibility guidelines for NMT. Reston (VA): Society of Nuclear Medicine; 2003. Electronic copies: Available from the Society of Nuclear Medicine Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on July 20, 1999. It was verified by the guideline developer as of August 5, 1999.This summary was updated on May 18, 2005. The updated information was verified by the guideline developer on June 30, 2005.

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